

Estimating the Compensation of Division I-A (Football Bowl Subdivision--FBS) Football Coaches

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The project starts on May 21 and lasts 5 weeks.

- Provide a succinct and non-technical description of the project. The audience for the proposal is a committee of inter-disciplinary faculty.

An extensive literature explains the salaries of professional athletes. A much smaller literature explains the pay of coaches of professional teams. Even fewer articles exist for the collegiate ranks. One of them, Humphreys (2000), shows that coaches of women's basketball teams earn less than coaches of men's basketball teams.

My earlier paper (with Michael Leeds, 2010) extended this literature by estimating a salary equation for head football coaches in Division I-A schools using a survey of 2006 salaries from *USA Today*. The purpose of this SOAR project is to update the data and expand them to include revenue (subdivided into categories such as gate revenue and TV revenue) from football. The goal is to improve the estimation of salaries and then extend the paper to find the direct effect of coaching success on revenue. Executive compensation literature indicates that the very best executives are paid much more than executives who are only slightly worse, and I want to find out if the same holds for football coaches. Since it is easier to measure football performance than executive performance, I will be able to find if some coaches earn more because they are more successful or if they are paid more because the school where they coach has greater revenue. I will study the executive compensation literature and develop these ideas further.

Salaries are rewards for performance. In theory, the equilibrium salary of a professional football coach is easily determined. Basic labor economics, as adapted by Scully (1974) and the extensive literature that followed his paper, dictates that the coach's salary (S_c) equals his marginal revenue product (MRP_c), which is the product of marginal product (MP_c) and marginal revenue (MR_w).

The marginal product of a coach (MP_c) is his contribution to the number of games that the team wins. The marginal revenue of a win (MR_w) is the dollar value to the team of an additional win. By this reasoning, a coach who is particularly effective at producing wins will be paid a higher salary. Similarly, the coach of a team located in a market that is particularly sensitive to the team's performance will receive a higher salary. In practice, however, it can be hard to determine the contribution a coach makes to his team's performance (see Berri, Leeds, Leeds, and Mondello, 2009).

At the college level, salary determination is even more complex than at the professional level because coaches and the universities that employ them enjoy a rent at the expense of the athletes. Thus, a coach who has lucrative alternatives, strong bargaining power, and who coaches a team that generates significant rents should have a higher salary than a coach who does not have such characteristics.

The salary of football coaches can be estimated as a function of three kinds of variables: coach's performance, school characteristics, and conference categories (dummies).

$$lsal = \alpha*X + \beta*Y + \gamma*Z + \varepsilon$$

where $lsal$ = the log of the coach's salary

X = vector of coach's performance

Y = vector of school characteristics

Z = conference dummies

A better coach will have a higher marginal revenue product as well as a better bargaining position, as he is likely to have more lucrative outside offers. A coach's ability will be reflected in his overall win percentage, the number of bowls in which his teams appear, and the number of conference and national championships he has won.

Experience, as measured by the number of years that a coach has spent at his current institution, could reflect the quality of the match, which would increase the coach's marginal product and lead to a positive impact on salary. Alternatively, a longer relationship could lead to a lower salary if it means that the coach has refused – or been unable to obtain – outside offers. This would reduce the bargaining ability of the coach. The net impact is an empirical issue.

State schools face particular pressure to succeed athletically because they face an additional interest group: state legislators. Success on the gridiron could translate to additional state funding (see Shapiro, 1983). Because the competition for coaches will be greater among state schools we expect being a state school to have a positive impact on salary.

School enrollment should have a positive impact on salaries. All else equal, a larger student body provides a larger fan base both on campus and among alumni. It may also display larger enthusiasm for athletics. This, in turn, increases both game attendance and the potential media market. A larger school thus provides higher rents into which the coach can tap.

Schools that have particularly stringent admissions criteria are likely to emphasize academic quality over football as a source of prestige. Academic quality – measured as the difficulty of being admitted to the university – should have a negative effect on salary.

Finally, salaries vary with athletic conference because each conference has a football program of different strength and size. In the Bowl Championship Series (BCS) conferences, for example, a win is worth more revenue, so the MRP of the coach, as well as his ability to extract players' rents, will be higher.

- Enumerate the roles and responsibilities of the student(s) and faculty member, and include a time table of expected milestones:

My responsibility is to give Aaron clear direction to how to collect and enter the data. For example, the salary of coach comes from different sources and is not self-explanatory. It involves various bonuses that the coach may or may not attain. The contracts of all public Division I-A (Football Bowl Subdivision--FBS) football coaches have been made public by *USA Today* since 2006. Aaron will access them and note the details, such as wage and non-wage compensations and the size and conditions of the coach's bonuses. He will also collect other data on school characteristics and the success of the football team.

Aaron will next help search the literature on executive compensation to help build a more complete model of executive compensation.

The data will be collected during the five weeks of the project, and I will use STATA statistical software for the estimation. I will teach Aaron how to use it and interpret the output.

June 30, 2012: Rough draft

August 31, 2012: An updated draft

December 31, 2012: First submission of results to an economics journal

- Describe how the student will be engaged in discipline-appropriate scholarly research.

Aaron will collect and enter the data the data, which is the first step in any empirical project. In sports economics, he will then read the background literature that explains salary determination. We will apply insights from the executive compensation literature, which uses similar models. We will run regressions as outlined above. Aaron has had basic statistics and will be able to analyze the results.

- Describe how the work of the student will contribute to the discipline and opportunities the student will have to share his or her work with other students, faculty, and the community.

Because there are few papers in the economics literature about coaching salaries, this paper make a contribution to the discipline.

Aaron will be able to present the results at Moravian College. He can make brief presentations in two economics classes, Labor Economics (ECON 329) and The Economics of Sports (ECON 312). He can also make a special presentation for members of ODE, the Economics Honor Society. Each year, the students engaged in an honors project in our department make a short presentation to potential honors students to create interest in the program and carry on the torch.

- Enumerate and justify project-related equipment, supplies and travel expenses.

Not applicable.

References:

Brad R. Humphreys (2000). Equal Pay on the Hardwood: The Earnings Gap Between Male and Female NCAA Division I Basketball Coaches, *Journal of Sports Economics*, vol. 1, no. 3, pp. 299-307.

David Berri, Michael Leeds, Eva Marikova Leeds, and Michael Mondello: The Role of Managers in Team Performance," with David Berri, Michael Leeds, and Michael Mondello, *International Journal of Sports Finance*, v. 4, no. 2, May 2009, pp. 76-93.

Michael Leeds and Eva Marikova Leeds, Incentives and Rewards of Head Football Coaches in Division I-A Schools, paper presented at the Eastern Economics Association Conference, February 2010.

Gerald W. Scully. Pay and Performance in Major League Baseball. *The American Economic Review*, Volume 64, Issue 6 (Dec., 1974), 915-930.

Beth Shapiro, "John Hannah and the Growth of Big-Time Intercollegiate Athletics at Michigan State University," *Journal of Sport History*, v. 3, 1983, pp. 26-40.

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Student Information: Aaron Harris, Economics and Political Science, May 2014

Faculty Mentor: Dr. Eva Marikova Leeds

On campus housing is not required

- Statement of Purpose

The purpose of this project is to analyze the salaries of college football coaches to determine which coaches are paid the most, what factors have the greatest impact on their salaries, and if there is a large divide in salary between good coaches and the best coaches. Many factors determine the salary of a college football coach, which include: public or private school, emphasis on academics, popularity of the team (ticket sales), the number of games won by the coach, experience, enrollment in the school, bargaining ability, and the athletic conference.

Coaches at public schools have a higher stake in winning because the number of wins could mean the difference between more or less funding from the state or the institution for their football program. Winning could also yield higher ticket sales. Selling more tickets increases the amount of rent earned. This rent, which is received from the players' abilities, goes toward a number of costs, one of which could be an increase in the head coach's salary (Kahn 10). The number of wins is a good way to measure the performance of a coach. Unlike the business world, where it is hard to define success, success is easy to define in sports because each game has a specific favorable outcome: a win.

Coaches at institutions that place more emphasis on academics rather than football could have their salary restricted by the school. However, these restrictions could be less likely if the coach is able to coach at a different school for a higher salary. If the coach does not have another option for employment, it is more likely that his salary will be lower. Other factors, such as the conference and bowl game bonuses, can also impact the salary of the coach.

- Rationale for Participating in this SOAR Project

Economic research is a path that I would like to pursue because I find how economists model real-life events to be interesting. The question of whether winning pays big dividends for a coach is intriguing. Also, are the coaches with the best records in the most competitive conferences paid the most? Legendary coaches, such as Joe Paterno, are among the best, but how much more do they

make in comparison to other coaches? All of these questions are fascinating to me. I would greatly enjoy the chance to apply what I have learned at Moravian College to doing research, and it would enhance my educational experience. I have found that I learn best through reading and hands-on learning. The chance to participate in this kind of learning would greatly increase the quality of education I receive at Moravian. Another reason why I want to participate in this research is that there has been very little research done on this topic. It would be exciting to apply what I have learned to make a contribution to the discipline of economics through research.

- Expected Outcomes for the Project

I expect that coaches who have the most wins in the largest conferences will have the highest salaries. Also, I believe that coaches at public institutions will have the highest salaries due to the emphasis placed on athletic programs and a larger fan base. Private institutions that are very selective academically will have lower salaries for head coaches.

References

Kahn, Lawrence M. "Markets: Cartel Behavior and Amateurism in College Sports." *Journal of Economic Perspectives* 21.1 (2007): 209-26.